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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/816,754 03/26/2001 Atsushi Yamaguchi PF-2772 6543

466 7590 07/03/2002

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EXAMINER

FORDE, REMMON R

ART UNIT PAPER NUMBER

2826

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,754

Applicant(s)

YAMAGUCHI ET AL.

Examiner

Remmon R. Fordé

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) 14-16, 34 and 40-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 17-33 and 35-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response To Restriction Election

Examiner acknowledges receipt of Applicant's election of specie 1, Figure 2 and Applicant's determined readable claims on that elected embodiment, namely claims 1-13, 15-33 and 35-55 in Paper No. 5. However, Examiner disagrees and asserts that claims 15, 16 and 40-55 are clearly not readable on the elected embodiment/specie, Figure 2, but are in fact readable on embodiment 2, Figure 3. Therefore, claims 15, 16 and 40-55 are hereby withdrawn from further consideration as being readable on a non-elected embodiment.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-7, 11, 13, 17-26, 33 and 35-39 rejected under 35 U.S.C. 102(e) as being anticipated by Sugiura et al..

Regarding claims 1-7, 17-26 and 35-39, referencing Figures 12-19, Sugiura et al. discloses a nitride based semiconductor laser device having a multiple quantum well active layer (108), the active layer has both at least a high dislocation density region and at least a low dislocation density region lower in dislocation density than the high dislocation density region, wherein the low dislocation density region includes a current injection region into which a current is injected, and the active layer is less than $1 \times 10^{18} \text{m}^{-3}$ in impurity concentration (i.e. the quantum well and barrier layers of the quantum well active layer structure are undoped.) Sugiura et al. further discloses that the dislocation density of the semiconductor film structure was low about 10^5cm^{-2} . Lastly, Sugiura et al. discloses a current injection electrode (113) provided over an upper semiconductor layer (112) overlying the active layer. (Column 19, line 40 – Column 28, line 44.)

Regarding claims 11, 13, 33, referencing Figures 12-19, Sugiura et al. further discloses that the nitride based semiconductor laser device is provided over dielectric mask patterns (102) provided on a gallium nitride top surface (103) of an epitaxial lateral overgrowth substrate (101). (Column 19, line 40 – Column 20, line 53.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-10, 12 and 27-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura et al..

Regarding claims 8-10 and 27-31, Sugiura et al. teaches all the claimed invention except for the exact dislocation density in various regions of the active layer. Although Sugiura et al. does not teach the exact dislocation density in various regions of the active layer as that claimed by Applicant, the shape, size, dimension and concentration differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 125 USPQ 416.

Regarding claims 12 and 32, Sugiura et al. teaches all the claimed invention except for the exact mask width of the dielectric mask pattern. Although Sugiura et al. does not teach the exact mask width of the dielectric mask pattern as that claimed by Applicant, the shape, size, dimension differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. It appears that these changes produce no functional differences and therefore would have been obvious. Note *In re Leshin*, 125 USPQ 416.

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Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Petroff et al., Kiyoku et al., Karam et al., Ikeda, Nunoue et al. and Koike et al. each disclose multi-layer semiconductor devices fabricated with reduced dislocations.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Remmon R. Fordé whose telephone number is (703) 305-4533. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5841 for regular communications and (703) 308-5841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Remmon R. Fordé
June 29, 2002


NATHAN J. FLYNN
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